



Anales de Psicología  
ISSN: 0212-9728  
servpubl@fcu.um.es  
Universidad de Murcia  
España

Ricarte-Trives, Jorge J.; Latorre-Postigo, José M.; Ros-Segura, Laura  
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Anales de Psicología, vol. 30, núm. 3, septiembre-diciembre, 2014, pp. 1129-1136  
Universidad de Murcia  
Murcia, España

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## Effects of instructions and cue subjectiveness on specificity of autobiographical memory recall

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**Título:** Efectos de las instrucciones y de la subjetividad de la palabra clave en el recuerdo específico de la memoria autobiográfica.

**Resumen:** El principal objetivo de este trabajo es determinar la influencia de las instrucciones en la especificidad de los recuerdos autobiográficos obtenidos mediante el Test de Memoria Autobiográfica (*Autobiographical Memory Test*; Williams & Broadbent, 1986) y la eficacia de los criterios de selección de palabras clave basados en parámetros subjetivos derivados de un programa de léxico estandarizado. Los resultados mostraron una elevada potencia de las instrucciones específicas en la versión escrita en comparación con el recuerdo no dirigido ante la misma lista de palabras repetidas tres semanas más tarde mediante un diseño intrasujeto contrabalanceo de medidas repetidas. Este efecto era mayor cuando los participantes habían realizado en primer lugar la tarea de recuerdo no dirigido. Las diferentes listas de palabras seleccionada mediante el programa Buscapalabras (Davis & Perea, 2005) mostraron resultados similares. Estos resultados señalan que los mismos estímulos pueden utilizarse de forma repetida para obtener recuerdos voluntarios e involuntarios mediante cambios en las instrucciones. Además, los programas léxicos estandarizados pueden emplearse para seleccionar palabras clave que evoquen recuerdos controlando las características subjetivas relacionadas con parámetros del lenguaje (por ejemplo, frecuencia, nivel de abstracción y familiaridad).

**Palabras clave:** memoria autobiográfica; subjetividad; instrucciones; especificidad.

**Abstract:** The first aim of this study was to determine the power of instructions on the specificity of autobiographical memory as obtained with the Autobiographical Memory Test (AMT; Williams & Broadbent, 1986) and the efficacy of cue word criteria selection based on subjective parameters obtained with a standardized lexical program. Results showed a high power of specific instructions in its written version in contrast to non-directed memory recall to the same list of words three weeks later in a counterbalanced repeated measures within-subjects design. This effect was stronger when subjects previously were faced to the non-specific recovery task. Matched word lists using the “Buscapalabras” program (Davis & Perea, 2005) showed a very similar behaviour. These results point out that the same stimuli can be used repeatedly to obtain voluntary and involuntary retrieval with changes at instructional level. Additionally, standardized lexical programs can be employed to adapt cue-words of memory recall systems controlling for subjective differences related to language parameters (frequency, imageability and familiarity).

**Key words:** mutobiographical memory; subjectiveness; instructions; specificity.

### Introduction

Autobiographical memory is defined as the type of memory that is concerned with the recollection of personally experienced past events and plays an essential role to human functioning, contributing to an individual's sense of self (Conway, 2005; Conway, Singer, & Tagini, 2004), to plan future actions in the light of past problem solving (e.g., Williams et al., 2007) and, consequently, mediating the representation of our social framework (Conway & Pleydell-Pearce, 2000; Nelson & Fivush, 2004). This psychological construct has been supported by the development of the Self-Memory System theoretical model (Conway & Pleydell-Pearce, 2000). According to this model, autobiographical memories are transitory dynamic mental constructions generated from an underlying knowledge base which is sensitive to cues. Information is stored always going through steps inside of associated information hierarchy of the autobiographical knowledge from a highest level (lifetime periods) and an intermediate level (general events), to a lowest level (event-specific knowledge), with a more abstract and conceptual summaries of experiences on the top of this hierarchy and more concrete sensory-perceptual aspects of unique events in the bottom (Conway & Pleydell-Pearce, 2000).

To test such underlying knowledge or autobiographical memories and its recovery mechanisms, the most broadly employed procedure is the Autobiographical Memory Test (AMT; Williams & Broadbent, 1986). Subjects are presented with a series of cue words and are instructed to retrieve and report a memory of a specific event that the word reminds them of, with a specific event being defined as an event having taken place on a particular day at a particular place. However, the role of AMT procedures has been underestimated due to the AMT characteristics and its different procedures in different studies. Furthermore, other methodological aspects of AMT procedure such as the way of presenting cues, audio taping responses and the maximum available amount of time to respond, has been considered moderators of AMT performance in psychiatric and non-psychiatric samples as a result of a meta-analysis (Van Vreeswijk & de Wilde, 2004). Nevertheless, the AMT shows enough consistency to generate reliable data when cues are presented by written (e.g., Raes, Hermans, de Decker, Eelen, & Williams, 2003) or computerized (Barnhofer, Crane, Spinhoven, & Williams, 2007; Newcomb, Mineka, & Zinbarg, 2006) systems compared to data obtained by pioneering oral AMT procedure (Williams & Broadbent, 1986). Even several authors have pointed out that a well designed and empirically informed protocol for the use of the AMT is necessary (Roberts, Carlos, & Kashdan, 2006; Van Vreeswijk & de Wilde, 2004; Williams et al., 2007).

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An important methodological issue related to AMT procedure is the criteria selection of words used as cues to initiate memory search. It is clear that the use of certain cue words can influence what type of memories is obtained in the task. In this sense, Meilán et al. (2012) found that mood congruence effects occurs in the processing of negative emotional words, but not in the positive emotional words. Additionally, Williams, Healy and Ellis (1999) with an experimental approach and using neutral words to avoid strategic biases found an effect on specificity of high imageable words compared to low imageable but not for frequency with greater omissions in response to low-imageable stimuli than to high-imageable stimuli. Since then, the most common method to match words lists with different valence has been the use of frequency, imageability and familiarity based on experts valuation (e.g., Crane, Barnhofer, & Williams, 2007), although verbal and written frequency (Stopa & Jenkins, 2007) or emotional intensity (Raes et al., 2006) can also be included. From these subjective variables, a high imageability has been shown to be the most powerful to elicit specific memories arriving to produce a direct retrieval. Williams et al., (2006) found that the high words imageability produced higher specific retrieval than low imageable words in the condition of specific instructions compared to a general instructions condition. The manipulation of imageability did not produce an impairment on cognitive load in a simultaneous task development (random generation) suggesting that our attention should be also paid on other subjective components of retrieval. As a consequence, a new very interesting approach on cue subjectiveness has started to assess the relationship between content of cue and specificity. Barnhofer et al. (2007) found that under conditions of compromised executive control individuals at risk of depression are more likely to fail to retrieve specific memories in relation to 'need for approval' cues. Using trait words (friendly, selfish) self incoherent schemes can be activated deflecting cognitive effort to self-perceptions producing a difficulty on access to specific recovery maintaining an overgeneral status (Spinhoven, Bockting, Kremers, Schene, & Williams, 2007).

A big amount of research using AMT has been focused on clinical population (see Williams et al., 2007 for a revision) and for that reason the standard AMT usefulness to assess general memories in non-clinical samples has been placed in doubt (Raes, Hermans, Williams, & Eelen, 2007). Alternative procedures have been tested, as the Sentence Completion Procedure (SCEPT, Raes et al., 2007). In a first experiment, the SCEPT obtained a greater general recovery in a students sample although in a second experiment, when the SCEPT was applied with specific instruction; results led researchers to conclude that the SCEPT power to elicit general recovery could be due to the elimination in this test of specific instructions. They concluded that an important reason why the AMT fails to detect OGM in non-clinical respondents is its explicit instruction to recall specific memories. These results revealed that could be important for future AMT research compare the effects of standard tradi-

tional specific AMT instructions to the retrieval induced in absence of specific instructions. In other words, are the standard AMT instructions strong enough to produce specific memories in non-clinical population compared to a free recall alternative? A counterbalanced repeated measures design to isolate AMT application instructions power, controlling for words subjectiveness, was designed in the present study to answer that question. AMT's instructions have been previously manipulated in the context of memory search mechanisms to induce general retrieval (Raes, Hermans, Williams, & Eelen, 2006; Williams et al., 2006). In these studies, the generic condition was designed to obtain categorical memories as was required a "type of event or a series of events" and subjects were instructed to not to generate specific events accompanied by examples. More recently, a reversed version of the AMT (AMT-R) has been used in an attempt to diminish the executive control demands with trauma-exposed participants (Dalgleish, Rolfe, Golden, Dunn, & Barnard, 2008) asking participants to generate categorical autobiographical memories to cue words and to avoid responding with specific events, showing that the executive demand associated with the need to traverse down the hierarchy of autobiographical memories to suitable specific episodes would be removed. Following a more naturalistic way of everyday remember, in the current study we tested the effect of specific instructions against a free recall task associated to the same set of words, without examples for general retrieval offered to subjects and without avoiding subjects to retrieve specific memories as well.

Although the most extended method used to obtain autobiographical recall includes only cue words of positive and negative valence (Williams & Broadbent, 1986), some researchers have also included words of a neutral valence (e.g. Williams, 1996). Due to the subjective components of valence (positive, negative or neutral), the current research will include cue-words representative of those valences.

In summary, the aim of this study was the assessment of the effects of specific instructions on specificity recall compared to the effects of non-specific instructions to the same list of positive, negative and neutral words in a non-clinical sample. To test the possibility of constructing comparable lists of cue words we also generated two different forms of AMT that were matched for valence, familiarity, imageability and frequency using a standardized lexical program. It was hypothesised a higher effect of specific instructions although not to what extend and a higher general recall in the non-specific condition, supporting the SMS postulates (Conway & Pleydell-Pearce, 2000), with general memories placed in an initial phase of recovery. We also expected no differences on memory recall between the two generated forms of AMT by the lexical program.

## Method

### Participants

Sample was composed by seventy-five university students who decided voluntarily to collaborate on the experimental sessions. Subjects did not report traumatic situations, a depressive episode among the three last years, relevant physical diseases or current medication administration.

### Materials

The Autobiographical Memory Test (AMT; Williams & Broadbent, 1986) was used in a written format. Participants were given a booklet with 15 pages. On the first page, the instructions were displayed; the next two pages included practice items: car and tree. Instructions and words were also read by an evaluator and an explanation period was introduced at the end of the instructions and at the end of practice words to ensure subjects task understanding. Words were presented alternating positive and negative and positioning neutral cues in the middle and in the end of the list (see Appendix I). Participants were asked to write down a memory. When the 60-s time limit for a cue was reached, participants were instructed to turn to the next cue.

For the specific condition instructions were: *I am interested in your memory of events, happenings or things that have happened in your life. In this questionnaire it will appear to you one word on each page. For each word, I want you to remember an event, happening or thing that has happened to you that the word reminds of you. The event can have occurred recently (past week) or a long time ago when you were*

*a child. It may be something important or trivial (without importance). One more thing: the memory should be **specific** (something lasting less than a day and have occurred in a particular moment and place). For example in response to a word "good", it wouldn't be correct to respond: "I always enjoy a good party" because there is no mention to an specific event, although it would be correct to respond: "I spent a very good time at Juan's party last Friday" (because this was a specific event that happened in a concrete place and moment and lasted less than a day). It is also important to obtain a memory or event different for each word. If you use the same memory for more than one word the memory will be considered invalid. Before start let's try with two practice words. For non-specific condition the instructions were exactly the same removing the definition of specific memory and the examples.*

Cue words were screened from the Brittlebank, Scott, Williams and Ferrier (1993) study and matched for frequency, imageability and familiarity into the same application form employing a standardized lexical program (Davis & Peerea, 2005). The "Buscapalabras" lexical program (B-Pal) was used to select subjective values of words. B-pal is the Spanish version of the original N-Watch program for English stimuli (Davis, 2005). The program is designed for use by researchers in psycholinguistics and compute measures with respect a default vocabulary of 31491 Spanish words. Total subjective values between forms taking precedence over imageability (imag) were also adjusted for familiarity (famil) and frequency (freq) (see Table 1).

There were not significant differences between forms in function of imageability, familiarity or frequency (see Table 2).

**Table 1.** Spanish (English) cue words and their frequency (freq), familiarity (famil) and imageability (imag) values in the same order they were presented to subjects.

FORM A				FORM B			
<i>cue-word</i>	<i>freq</i>	<i>famil</i>	<i>imag</i>	<i>cue-word</i>	<i>freq</i>	<i>famil</i>	<i>imag</i>
Felicidad (Happiness)	1.68	6.04	4.05	Alegría (Joy)	1.74	6.50	4.96
Culpable (Guilty)	1.39	5.36	4.33	Dolor (Pain)	2.00	6.51	5.24
Amistad (Friendship)	1.61	6.36	4.08	Fuerte (Strong)	2.11	6.61	4.68
Fracaso (Failure)	1.65	5.30	3.45	Rechazo (Rejection)	1.45	4.36	3.73
Ilusión (Hope)	1.59	6.64	4.10	Orgullo (Pride)	1.57	6.31	4.56
Libro (Book)	2.29	6.84	6.21	Casa (House)	2.80	6.70	6.46
Preocupación (Worry)	1.52	6.31	3.80	Pena (Grief)	1.93	5.80	4.26
Energía (Energy)	2.05	5.85	2.75	Suerte (Luck)	2.01	6.70	2.70
Tristeza (Sadness)	1.57	6.82	4.99	Daño (Damage)	1.58	6.21	4.45
Sonrisa (Smile)	2.00	6.18	6.21	Entusiasmo (Enthusiasm)	1.64	5.21	3.98
Enfermedad (Disease)	2.05	6.45	5.01	Error (Mistake)	1.76	6.69	3.75
Llevar (Carry)	2.01	6.47	4.30	Buscar (Search)	1.92	6.39	4.47

**Table 2.** Differences on subjective values by Form.

	Form A		Form B		<i>t value</i>	<i>p</i>
	<i>M (SD)</i>	Range	<i>M (SD)</i>	Range		
<i>Imageability</i>	4.44 (1.02)	2.75-6.21	4.44 (0.92)	2.70-6.46	.008	.993
<i>Familiarity</i>	6.21 (0.51)	5.30-6.84	6.17 (0.72)	4.36-6.70	.207	.838
<i>Frequency</i>	1.78 (0.28)	1.39-2.29	1.87 (0.35)	1.45-2.80	-.701	.491

## Procedure

Subjects were recruited by means of public communication realised by different professors in local Faculties. Students were informed that a psychological study about memory would be conducted. No credits for participation were offered.

The application sessions took place in the students' classes and with the support of their professor. When experimenters arrived at each classroom, general information about the study and session functioning was administered to ensure subjects' knowledge of procedure. At the first meeting, half of the subjects (randomly selected) were conducted to a different classroom and were accompanied by a second experimenter. So half of the subjects ( $N = 37$ ) in their first session received the AMT application with specific instructions and the other half ( $N = 38$ ) performed the AMT with non-specific instructions. Within each group, half of the subjects received the Form A and the rest the Form B, also with a randomized assignment. Three weeks later the same physical subjects distribution was employed and the subjects produced responses to the same list of words with a different instruction. After the second AMT administration, questions about psychological history and the BDI-SF inventory were administered.

## Results

### Type of autobiographical response

Responses were rated as *specific* when they referred to an event that would have occurred on a particular day at a particular time and place (lasting less than 24 hours), as *extended*, when they referred to a period of time longer than a day, as *categoric*, when they referred to repeatedly occurring class of events (normally periods of life), as *semantic associate*, when they referred to an association that did not mention an event, or as *omission* for non responses or repeated events. Two researchers who were independently blinded to the experimental conditions rated the responses of all of the participants. An inter-rater agreement of 89% was obtained.

### Data Analyses

A  $2 \times 2 \times 2$  mixed ANCOVAs were carried out separately for each type of autobiographical recall, with the variable instructions (specific/non-specific) as within-subjects factor, the variables order of instruction and form (A vs B) as inter-subjects factors, and type of autobiographical recall (specific, categoric, extended, semantic association or non retrieval) as dependent variables with BDI scores as covariates variable. Due to the reported relationship between depression and autobiographical memory (Williams et al., 2007, for extended revision), the covariation of emotional scores is highly recommended in this kind of study (e.g., Raes, Williams, & Hermans, 2009; Ros & Latorre, 2010). Planned comparisons

by one-way ANOVA or paired t-test were also conducted. Relationships between variables were explored by Pearson product-moment. We did not find significant differences in general or specific retrieval by gender so this variable was removed from analyses.

### Instructions Effects

As expected, it was found a main effect for the instruction variable ( $F(1,70) = 52.98$ ,  $MSE = 248.84$ ,  $p < .000$ ) with higher specific memories in the specific instructions condition. Furthermore, under condition of specific instructions, subjects showed less categoric memories ( $F(1,70) = 27.28$ ,  $MSE = 74.70$ ,  $p < .000$ ), less extended ( $F(1,74) = 7.42$ ,  $MSE = 12.24$ ,  $p < .008$ ), less semantic associations ( $F(1,70) = 10.24$ ,  $MSE = 4.23$ ,  $p < .002$ ) and less omissions ( $F(1,70) = 5.06$ ,  $MSE = 3.15$ ,  $p = .028$ ) than under non specific instructions condition (see table 3).

**Table 3.** Type of autobiographical recall by Form (A/B) and type of instruction (specific/non-specific)

Type of re-trieval	Form A		Form B	
	Instructions	Instructions	Instructions	Instructions
Specific	10.41 (1.95)	5.88 (3.06)	10.17 (1.93)	6.27 (2.89)
Categoric	0.35 (0.69)	2.97 (2.40)	0.29 (0.51)	2.44 (2.32)
Extended	0.82 (1.35)	1.94 (1.70)	0.75 (1.33)	1.73 (1.18)
Semantic	0.12 (0.32)	0.56 (0.96)	0.12 (0.33)	0.51 (0.81)
Omissions	0.32 (0.81)	0.67 (1.29)	0.66 (1.31)	1.09 (1.76)

The results from the  $2 \times 2 \times 2$  mixed ANCOVA, with the variable instructions (specific/non-specific) as within-subjects factor, the variables order and form as inter-subjects factors, BDI scores as covariate variable, and specific autobiographical memories as dependent variable, showed a significant interaction between the order of instructions and the instruction variables ( $F(1,70) = 7.35$ ,  $MSE = 34.53$ ,  $p < .008$ ).

Main components analyses showed a significant effect of order under specific instructions condition ( $F(1,74) = 4.49$ ,  $MSE = 16.07$ ,  $p = .037$ ) as a consequence of a higher number of specific responses in "non-specific instructions first" condition. However, there was a not significant main effect of order under non-specific instructions condition ( $F(1,74) = 2.37$ ,  $MSE = 20.38$ ,  $p = .13$ ) (see Table 4).

**Table 4.** Means (and standard deviations) of specific autobiographical responses obtained in function of instructions and order of instructions.

Order of Instructions	Type of Instruction	
	Specific Instructions	Non-Specific Instructions
Specific Instructions first	9.82 (1.91)	6.63 (3.23)
Non-Specific Instructions first	10.74 (1.87)	5.58 (2.59)

### AMT Forms and cue valence

No significant differences between AMT Forms in any memories' category were found. We wanted to test if a paired list of words matched in its subjective parameters using a lexical program would show similar effects on recall. As it can be seen in Table 5, the two generated lists behave in a very similar way. There were no differences in function of the valence by forms although neutral cues generated significantly less specific memories than positive or negative words ( $t(74) = 28.92$  and  $t(74) = 32.24$ , both  $p_s < .000$ ).

**Table 5.** Means (and Standard Deviations) of specific autobiographical responses and subjective values by Form.

	Form A	Form B
<i>Specific*</i>	10.41 (1.95)	10.17 (1.93)
<i>Specific / Positive cues</i>	0.87 (0.18)	0.86 (0.17)
<i>Specific / Negative cues</i>	0.90 (0.16)	0.87 (0.18)
<i>Specific / Neutral Cues</i>	0.76 (0.33)	0.75 (0.34)

\* Obtained with standard AMT instructions (Williams & Broadbent, 1986).

### Relationship between general and specific categories

Specific memories (events lasting less than 24 hours) were negatively correlated with general memories (extended and categoric memories; events lasting more than 24 hours) in both instructional conditions ( $r = -.83$ ,  $p < .000$  for specific instructions (SI), and  $r = -.79$ ,  $p < .000$  for non-specific instructions (NSI)). However, in the SI condition the specific recall was more strongly negatively correlated with extended memories ( $r = -.75$ ,  $p < .000$ ) than with categoric memories ( $r = -.39$ ,  $p < .000$ ) while in the NSI condition these correlations were reversed, with specific memories more negatively correlated with categoric memories ( $r = -.69$ ,  $p < .000$ ) than with extended autobiographical memories ( $r = -.28$ ,  $p < .000$ ).

### Discussion

The found effects of specific AMT instructions support previous findings using alternative procedures to assess general recovery where the success of such alternatives in obtaining overgenerality in non-clinical sample were due to the type of instruction (e.g., Raes et al., 2007). The standard AMT instructions showed a strong power to elicit specific memories (85.7%) compared to the non-instructional directed specific recovery (50.8%). Previous research using different ways to generate autobiographical memories involuntarily found that 83% of the recorded memories described specific events (Ball & Little, 2006). The AMT standard instructions produced an increment of nearly the 36% of specific contents in subjects compared to the free specific memories elicited by words association in situations of none prompting and non academic rewarding. Confirming this instructional effect, the proportion of general recovery found in the non-specific instruction (NSI) condition was similar to the obtained by

other procedures that not used specific instructions as the SCEPT: 37.5% in our sample and 35% in Raes et al. (2007) study. To isolate instruction effect we decided to keep as a constant the cues to avoid subjective bias associated to words contents. Furthermore, to avoid the effect of order we counterbalanced the instructions presentation. It was expected a long-term effect of specific instructions with subjects trying to be specific through conditions considering that in the NSI condition the specific retrieval was not explicitly avoided. However, the interaction between order and instruction factors showed that subject produced more specific recall when previously had elicited recovery to the same words without specific instructions compared to the standard AMT instructions where subjects are directly asked to be specific to a word list after brief training. This result suggests, for evaluative and intervention purposes, that a previous training phase with the same cue words could activate recovery mechanisms that later on would produce higher specific rates. This is very relevant for therapeutical purposes during initial phase of severe depression when the low executive control resources makes very difficult an intervention based on specific training. However, any memory recovery task, even without being specific, would activate a recall process from a more general stadium which would facilitate in the future a higher number of specific memories that could be employed for positive therapy. In fact, preliminary results in our lab about specific recovery training programs have shown that any recovery activity, even when is not specific, produces an increment in specific recovery (Latorre, Serrano, Ros, Aguilar-Corcoles, & Navarro, 2008). For specificity assessment objectives, the effects of using a higher number of practice words, non-focused on specificity necessarily should be tested. In our study there were offered two practice words, when frequently three cues are used, no prompting during the test was projected and subjects were volunteers, so specificity in subjects was less constrained compared to other procedures. Even so, a high specificity in retrieval was obtained suggesting a high power of instructions and supporting recent studies were the AMT maintain its consistence as a procedure to produce different types of memories introducing changes in instructions (e.g., Dalgleish et al., 2008). As a consequence, AMT is becoming also a good reliable method to assess overgenerality in non clinical samples that should continue being tested in future research.

Another methodological issue implicated in AMT procedure that showed less consistency than instructions was the effect of word subjectiveness. Although the proposed method of words criteria selection (matched by lexical program parameters) was positively valued as we found a very similar behaviour between the two generated lists of words, the subjective parameters were able to create comparable memory results for positive and negative words but not for the neutral ones, even though the neutral words imageability average was one point over the negative and positive ones. These results suggest that could exist another subjective component associated to the valence of words of a higher

order than the parameters of imageability or familiarity that could affect subjects retrieval according to Dalglish's hypothesis who suggested that the valence effect is likely not due to the valence of the cue or the valence of the corresponding memory, but rather to the word itself with OGM being elicited by cues reflecting particular autobiographical themes rather than by cues differing valence (Dalglish et al., 2003). In fact, there is a growing literature suggesting that the influence on levels of specificity on the cue word task may be different in different participants samples (Dalglish et al., 2008) and even that is the cue personal subjective value which could be the responsible for the shift to processing of self-related information (Barnhofer et al., 2007; Crane et al., 2007). Barnhofer et al. (2007) found that under conditions of compromised executive control individuals at risk of depression are more likely to fail to retrieve specific memories in relation to need for approval cues. The results were not consistent in other subjective categories suggesting as a possible explanation that the method used to assess cues subjectiveness based on expert ratings could not achieve its objective because of participants' personal interpretations. These results point out the relevance of using more standardized methods to select words based on the higher samples of standardized lexical programs in order to avoid differences in memory recall produced by these individual subjective components of cue words.

Independently of cue valence, the lexical program used to match the word lists (Davis & Perea, 2005) showed an excellent behaviour supporting the selection of this kind of programs to generate different lists of words in different population that can throw comparable data for research. Our results confirm the pertinence of choosing words taking into account the subjective imageability and familiarity to create matched lists. Although familiarity has shown in early studies not to contribute to memory search (Williams et al., 1999), our results fit in with recent experimental research that have demonstrated that when imageability is handled, controlling for familiarity, a direct retrieval is obtained although its manipulation did not interfere with the development of a simultaneous task (Williams et al., 2006). These results suggest that our attention should be paid also to other subjective components of search mechanisms in agreement with previous studies showing that subjects rate memories retrieved in response to high-imageable cues as significantly more specific, more vivid and more pleasant than memories retrieved to low-imageable cues (Williams et al., 1999). This line of research, where personal subjective ratings for each cue word is demanded, should be continued in order to explore subjectiveness components of retrieval associated to each cue word. Furthermore, for intervention aims, the design of a procedure to elaborate a self-autobiographical list of words with a high power to elicit specific retrieval as a therapy intervention to prevent relapse in depressive processes would be very useful. As it has been suggested by Spinhoven et al. (2007), cue words should be chosen as relevant for a special group of patients to activate

sets of schema related information that could interfere or facilitate the recovery process. In the context of memory search mechanisms integrating contributions of the psycholinguistic field, could be very convenient show the subjective values of words lists using standardized programs in order to compare research results avoiding the possible effects of cue bias on specificity of retrieval.

Specificity of memory could act as a protective factor for mood disturbance (Raes et al., 2009). To fulfil such condition, specificity in recall should be functioning as an inhibitor of general recovery categories, preventing overgenerality as an avoiding response to negative feelings. We brought correlational data supporting this hypothesis but with different shade in function of task requirements. Specific memories correlated negatively with overgeneral memories (extended and categoric). However, when retrieval task requirements were higher as in the SI condition, specific recall was more confronted to extended than categoric recall. According to SMS model (Conway & Pleydell-Pearce, 2000), when subjects are demanded to find specific-event knowledge, a hierarchical mechanism is initiated, and as a result the type of memories higher in the hierarchy (extended) are first eliminated. Following this hierarchical process, when participants fail to achieve the target type of memory, their errors fall systematically into the category that is higher in the hierarchy (categoric) as it has been empirically demonstrated manipulating AMT instructions and cue's imageability (Williams et al., 2006). However, when the task instruction did not demand a specific memory and lower cognitive load was supposed, the specific recall inhibited more categoric than extended memories, suggesting that such specific contents could be fruit of a direct retrieval effect although not linked to only one general event representation, compared to direct retrieval produced by specific instructions (Conway & Pleydell-Pearce, 2000). This correlational data is also consistent with previous results about overgenerality among non-clinical samples where non-specificity can arise from a number of sources. Non-clinical participants would respond to cues with a variety of responses that simply share the characteristic of avoiding a specific response (Raes, Hermans, Williams, & Eelen, 2006). Additionally, for implications in therapy, we must consider that in situations where induce specific retrieval is not possible, tasks of retrieval to cue words without demand of specificity can inhibit categoric memories which has been considered the type of error that accounts for overgenerality (Williams & Dritschel, 1988) and predicts a worst recovery of depressive episodes (see Introduction).

More recently, a reversed version of the AMT (AMT-R) has been used in an attempt to diminish the executive control demands with trauma-exposed participants (Dalglish et al., 2008), asking participants to generate categoric autobiographical memories to cue words and to avoid responding with specific memories. The executive demand associated with the need to traverse down the hierarchy of autobiographical memories to suitable specific episodes would be

removed. Our results also support Raes et al. (2007) study which hypothesised that the lack of relationship between memory specificity and depression in non-clinical respondents could be due to the particular way in which the AMT is being administered (extensive instructions, provision of practice trials, and repeated prompting specificity). The condition of non-specific instruction from our study could be closer regarding cognitive load to the reversed AMT version with categoric instructions and where a positive relationship between specificity and emotional distress was expected.

The management of instructions in this study was not focused on categoric retrieval and specific memories were not repressed limiting the comparability of results with other studies although it was supposed a more naturalistic way of daily remembering. Anyway, it would be very interesting to

compare results of non-specific instructions retrieval with general test instructions as are applied with the AMT-R and its relationship with emotional and self-perceptive variables. The current results have been found using a non-clinical population although a more accurate testing comparing subjects with different clinical status (never depressed, previously depressed, depressed) should be implemented in future research.

**Acknowledgements.**- This study has been supported by the Regional Government of Castilla La Mancha [Consejería de Educación y Ciencia de Castilla La Mancha, grant PIII109-0274-8863] and the Ministry of Science and Innovation [Ministerio de Ciencia e Innovación, grant PSI2010-20088].

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(Article received: 12-12-2011; revision received: 19-3-2014; accepted: 29-4-2014)